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EXAMINER

MIGGINS, MICHAEL C

ART UNIT

PAPER NUMBER

1772

DATE MAILED: 09/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/704,881

Applicant(s)

WATKINS, RICHARD L.

Examiner

Michael C. Miggins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 July 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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**DETAILED ACTION**

**WITHDRAWN REJECTIONS**

1. All of the prior art rejections set forth in paper #5 have been withdrawn.

**REJECTIONS REPEATED**

2. There are no rejections repeated.

**ANSWERS TO APPLICANT'S ARGUMENTS**

3. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

**NEW REJECTIONS**

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 5-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Vogdes et al. (U.S. Patent No. 4,693,940).

Vogdes et al. teach a method for improving adhesion between two adjacent layers of a laminate membrane (abstract), comprising the steps of forming a laminate

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having a first thermoplastic layer adjacent a second thermoplastic layer (column 2, lines 4-22 and lines 54-68, column 3, lines 5-16), annealing the laminate (column 3, lines 40-65 and column 4, lines 36-50), wherein the laminate is annealed for at least about 15, 30, 40 minutes (column 3, lines 40-65 and column 4, lines 36-50) (applies to instant claims 1 and 5-7).

Although Vodges et al. do not specifically teach the step of annealing the laminate at a temperature above a thermal transition temperature of at least one polymeric component of at least one of the layers for a time sufficient for the at least one polymeric component to partially diffuse into the adjacent layer, it is the opinion of the examiner that such a limitation is inherent in the teachings of Vodges et al. since Vodges et al. specifically teaches that heat-treatment of the irradiated laminate results in substantial increases in bond strength and the laminate is treated at a temperature higher than the melting point of at least one, and preferably all, of the polymers in each of the compositions, treatment times range from 10 minutes to 24 hours (applies to instant claims 1 and 8).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1-2 and 4-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vogdes et al. (U.S. Patent No. 4,693,940) in view of Blonk et al. (U.S. Patent No. 6,082,025).

Vodges et al. teach a method for improving adhesion between two adjacent layers of a laminate membrane (abstract), comprising the steps of forming a laminate having a first thermoplastic layer adjacent a second thermoplastic layer (column 2, lines 4-22 and lines 54-68, column 3, lines 5-16), annealing the laminate (column 3, lines 40-65 and column 4, lines 36-50), wherein the laminate is annealed for at least about 15, 30, 40 minutes (column 3, lines 40-65 and column 4, lines 36-50) (applies to instant claims 1 and 5-7).

Although Vodges et al. do not specifically teach the step of annealing the laminate at a temperature above a thermal transition temperature of at least one polymeric component of at least one of the layers for a time sufficient for the at least one polymeric component to partially diffuse into the adjacent layer, it is the opinion of the examiner that such a limitation is inherent in the teachings of Vodges et al. since Vodges et al. specifically teaches that heat-treatment of the irradiated laminate results in substantial increases in bond strength and the laminate is treated at a temperature higher than the melting point of at least one, and preferably all, of the polymers in each of the compositions, treatment times range from 10 minutes to 24 hours (applies to instant claims 1 and 8).and it would have been obvious to provide such a step in order to improve the bond strength, mechanical properties of the laminate and reduce mechanical stress.

Vodges et al. teach applicant's invention substantially as claimed. However, Vodges et al. fail to disclose a method wherein the first layer is a thermoplastic elastomer layer and the second layer is a thermoplastic polymeric barrier layer, wherein the first layer comprises a thermoplastic polyurethane prepared from a polyester diol and the second layer comprises an ethylene-vinyl alcohol copolymer, further comprising at least a third layer comprising a thermoplastic polyurethane prepared from a polyester diol that is adjacent to the second layer, wherein the first layer comprises a thermoplastic polyurethane prepared from a polyester diol and the second layer comprises an ethylene-vinyl alcohol copolymer, and further wherein said blow molding step provides a bladder that is sealed and inflated after the annealing step and a shoe.

Blonk et al. teach a method wherein the first layer is a thermoplastic elastomer layer (32, Fig. 7) and the second layer is a thermoplastic polymeric barrier layer (30, Fig. 7), wherein the first layer comprises a thermoplastic polyurethane prepared from a polyester diol (see column 7, lines 30-67) and the second layer comprises an ethylene-vinyl alcohol copolymer (see column 13, line 4), further comprising at least a third layer (34, Fig. 7) comprising a thermoplastic polyurethane prepared from a polyester diol that is adjacent to the second layer (see column 16, lines 54-67), wherein the first layer comprises a thermoplastic polyurethane prepared from a polyester diol and the second layer comprises an ethylene-vinyl alcohol copolymer and a shoe (Fig. 1) (abstract, columns 4-5, column 7, lines 30-67, column 13, lines 1-15, columns 16-18 and Figs. 1 and 7) (applies to instant claims 4, 18-21 and 27-28) in a method for improving

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adhesion between two adjacent layers of laminate for the purpose of providing bladders which are elastic and have very low gas transmission rates.

Therefore it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to have provided Vogdes et al. with a method wherein the first layer is a thermoplastic elastomer layer and the second layer is a thermoplastic polymeric barrier layer, wherein the first layer comprises a thermoplastic polyurethane prepared from a polyester diol and the second layer comprises an ethylene-vinyl alcohol copolymer, further comprising at least a third layer comprising a thermoplastic polyurethane prepared from a polyester diol that is adjacent to the second layer, wherein the first layer comprises a thermoplastic polyurethane prepared from a polyester diol and the second layer comprises an ethylene-vinyl alcohol copolymer, and further wherein said blow molding step provides a bladder that is sealed and inflated after the annealing step and a shoe in the method of Vodges et al. for the purpose of providing a bladder which is elastic and has very low gas transmission rates as taught by Bonk et al..

The combined teachings of Vodges et al. and Bonk et al. disclose the claimed invention except for the physical properties recited in the claims 2, 9, 11-15, 17, 23-26 and 29 with regards to annealing temperature, time of annealing, amount of polyester diol, average molecular weight of diol, glass transition temperature and gas transmission rates. However, Vodges et al. teach an annealing temperature range (column 3, line 64), time of annealing (column 3, line 59) and Bonk et al. teach amount of polyester diol (column 10, line 36 through column 11, line 43), average molecular

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weight of diol (column 9, lines 29-36), glass transition temperature and gas transmission rates (column 22, lines 1-14). Thus one of ordinary skill in the art would have recognized that the physical properties recited in the claims 2, 9, 11-15, 17, 23-26 and 29 with regards to annealing temperature, time of annealing, amount of polyester diol, average molecular weight of diol, glass transition temperature and gas transmission rates would be readily determined through routine experimentation depending on the desired end results absent some showing of unexpected results. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have employed a method with the physical properties recited in the claims 2, 9, 11-15, 17, 23-26 and 29 with regards to annealing temperature, time of annealing, amount of polyester diol, average molecular weight of diol, glass transition temperature and gas transmission rates in order to provide improved a resin with improved bulk properties and mechanical properties, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) and *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vogdes et al. (U.S. Patent No. 4,693,940) in view of Wang et al. (U.S. Patent No. 6,124,007)



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Vogdes et al. disclose applicant's invention substantially as claimed. However, Vogdes et al. fail to disclose at least one of the first and second layers includes a semicrystalline polymeric component.

Wang et al. teach at least one of the first and second layers includes a semicrystalline polymeric component (liquid crystal, see column 4, line 16) in a method of making a laminated balloon (abstract) for the purpose of providing a high strength thermoplastic polymer and improved mechanical properties.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided at least one of the first and second layers includes a semicrystalline polymeric component in the method of Vogdes et al. in order to provide a high strength thermoplastic polymer and improved mechanical properties as taught by Wang et al..

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vogdes et al. (U.S. Patent No. 4,693,940) in view of Blonk et al. (U.S. Patent No. 6,082,025), as applied to claims 1-2 and 4-29 above, and further in view of Wang et al. (U.S. Patent No. 6,124,007)

Vogdes et al. disclose applicant's invention substantially as claimed. However, Vogdes et al. fail to disclose at least one of the first and second layers includes a semicrystalline polymeric component.

Wang et al. teach at least one of the first and second layers includes a semicrystalline polymeric component (liquid crystal, see column 4, line 16) in a method

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of making a laminated balloon (abstract) for the purpose of providing a high strength thermoplastic polymer and improved mechanical properties.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided at least one of the first and second layers includes a semicrystalline polymeric component in the method of Vogdes et al. in order to provide a high strength thermoplastic polymer and improved mechanical properties as taught by Wang et al..

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Miggins whose telephone number is (703) 305-0915. The examiner can normally be reached on Monday-Friday; 1:30-10:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pyon Harold can be reached on (703) 308-4251. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

MCM

September 21, 2002

HAROLD PYON  
SUPERVISORY PATENT EXAMINER

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9/23/02